Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Upon entry of the present amendment, the claims will stand as follows:

Please cancel claims 14, 21 and 27-61 without prejudice.

Please amend claims 1, 15 and 24 as follows:

1. (Presently Amended) A method for identifying a bioactivity or a biomolecule of interest, comprising:

(a) ~~contacting a library containing~~ obtaining a plurality of ~~clones comprising~~ polynucleotides derived from a mixed population of organisms or more than one organism;

(b) normalizing the plurality of polynucleotides;

(c) contacting a library containing clones of normalized polynucleotides from (b) with at least one oligonucleotide probe labeled with a detectable molecule; and

([[b]]d) separating clones with an analyzer that detects the detectable molecule.

2. (Previously presented) The method of claim 1 further comprising:

(a) contacting the separated clones with a reporter system that identifies a polynucleotide encoding a bioactivity or biomolecule of interest; and

(b) identifying clones capable of modulating expression or activity of the reporter system thereby identifying a polynucleotide of interest.

3. (Previously presented) The method of claim 1, wherein the library is an expression library.

4. (Previously presented) The method of claim 1, wherein the detectable molecule is a fluorescent molecule.

5. (Previously presented) The method of claim 1, wherein the analyzer is a FACS analyzer.

6. (Previously presented) The method of claim 1, wherein the mixed population of organisms is from an environmental sample.

7. (Previously presented) The method of claim 1, wherein the mixed population of organisms comprises microorganisms.

8. (Previously presented) The method of claim 6, wherein the environmental sample contains extremophiles.

9. (Previously presented) The method of claim 8, wherein the extremophiles are selected from the group consisting of hyperthermophiles, psychrophiles, halophiles, psychrotrophs, alkalophiles, and acidophiles.

10. (Previously presented) The method of claim 2, wherein the reporter system is a bioactive substrate.

11. (Previously presented) The method of claim 10, wherein the bioactive substrate comprises C12FDG.

12. (Previously presented) The method of claim 11, wherein the bioactive substrate further comprises a lipophilic tail.

13. (Previously presented) The method of claim 1, further comprising prior to (a):
(i) obtaining polynucleotides from a mixed population of organisms; and
(ii) generating a polynucleotide library.

14. (Cancelled)

15. (Currently amended) The method of claim 1, wherein the clones are encapsulated in a microenvironment suitable for facilitating molecular interactions.

16. (Previously presented) The method of claim 15, wherein the microenvironment is selected from beads, high temperature agaroses, gel microdroplets, cells, ghost red blood cells, macrophages, or liposomes.

17. (Previously presented) The method of claim 16, wherein the clones are encapsulated in a gel microdroplet.

18. (Previously presented) The method of claim 1, wherein the polynucleotide of interest encodes an enzyme.

19. (Previously presented) The method of claim 18, wherein the enzyme is selected from the group consisting of lipases, esterases, proteases, glycosidases, glycosyl transferases, phosphatases, kinases, mono- and dioxygenases, haloperoxidases, lignin peroxidases, diarylpropane peroxidases, eposize hydrolases, nitrile hydratases, nitrilases, transaminases, amidases, and acylases.

20. (Previously presented) The method of claim 1, wherein the reporter system comprises a detectable label.

21. (Cancelled)

22. (Previously presented) The method of claim 1, wherein the polynucleotide of interest encodes a small molecule.

23. (Previously presented) The method of claim 1, wherein the polynucleotide of interest, or fragments thereof, comprise one or more operons, or portions thereof.

24. (Presently Amended) The method of claim 23, wherein the operons, or portions thereof, encode[[s]] a complete or partial metabolic pathway.

25. (Previously presented) The method of claim 24, wherein the operons or portions thereof encoding a complete or partial metabolic pathway encode[[s]] polyketide syntheses.

26. (Previously presented) The method of claim 1, wherein the fluorescent analyzer is a fluorescence activated cell sorting (FACS) apparatus.

Claims 27-61 (Cancelled)